PDF Complete
Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

RAIS
ART OF FIRE

RAIS GABO SERIES

USER'S MANUAL

RAIS Gabo
RAIS Vola
RAIS Pina

RAIS A/S
Industrivej 20
9900 Frederikshavn
Denmark
Tel.: +45 98 47 90 33
Fax: +45 98 47 92 91

Tested & Listed by: O-T-L C Beaverton Oregon USA
OMNI-Test Laboratories, Inc.

PDF Complete
Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

TABLE OF CONTENTS

INTRODUCTION **3**

Safety and Environmental Testing *3*
Features and Items Included *3*

INSTALLATION **3**

Precautions and Specifications *3*
Specifications *4*
Assembly Instructions *5*
Baffle Plate Assembly *6*
Chimney *7*

OPERATING INSTRUCTIONS **8**

First Fire *8*
Building the Fire *9*
Check for a Proper Burn *9*

FIREWOOD **10**

Specifications *10*
Burning value of wood *10*
A Few Reminders *10*
Fuel Caution *10*

CARE AND MAINTENANCE **11**

Creosote – Formation and Need for Removal *11*
Surfaces *11*
Glass Doors *11*
Removing the Ashes *12*
Cleaning the Smoke Box/Baffle System *12*
Firebox Lining *12*
Gaskets *12*

TROUBLE SHOOTING **12**

WARRANTY **13**

Revision 2
January 17, 2006

PDF Complete
Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

S wood burning stove. As a product of award
we wish you many years of warmth and pleasure.

INTRODUCTION

We are asking you to:

PLEASE READ THIS ENTIRE MANUAL BEFORE YOU INSTALL AND USE YOUR NEW RAIS STOVE. FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY, OR EVEN DEATH. SAVE IT AND KEEP IT HANDY FOR EASY REFERRAL.

Safety and Environmental Testing

The RAIS Gabo Series stoves have been tested by OMNI-Test Laboratories, Inc. of Beaverton, Oregon and are listed to UL 1482 and ULC S627. They are also EPA certified and meet the more stringent WA State Environmental standards.

Features and Items Included

Your RAIS has a built in convection system, so the sides do not get very hot. It also creates air circulation in the room, to spread the heat faster and more evenly.

The stove is equipped with a "cool" handle - a specialty from RAIS, which enables you to operate it without the use of a glove (however, always use caution when touching areas where HOT surfaces are located).

Included with the RAIS stove (in the firebox) are:

- Flue collar with 3 bolts/nuts (to connect to stove/pipe)
- An oven mitt
- A box of RAIS starter matches
- A can of touch-up paint (**Remove from the stove!**)

Installation

Precautions and Specifications

IF THIS STOVE IS NOT INSTALLED PROPERLY, A HOME FIRE MAY RESULT. TO REDUCE THE RISK, PLEASE CAREFULLY FOLLOW THE DIRECTIONS FOR INSTALLATION. NOT FOR USE IN A MOBILE HOME.

Consult your local Building Inspector or Fire Marshall before installation to determine the need to obtain a permit. Also inquire about restrictions and installation inspection requirements in your area.
If utilizing an existing chimney, it is suggested that you have a professional mason or stove installer do a complete check-up of your chimney, liner, and flue.

In order for the stove to work and draw properly, sufficient air is important! Be especially aware of any mechanical fans (e.g. kitchen or bathroom) that may affect the proper draw.

Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

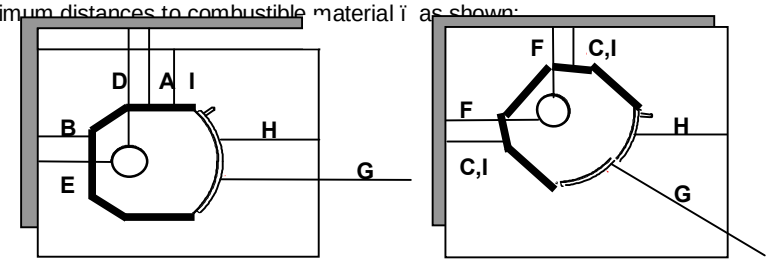
addition, sure that the floor and sub-flooring is designed to carry the extra weight of the stove. The floor protector or plate must be made of a non-combustible material.

The floor plate must cover under the stove and extend 16ò(41cm) (18ò(45cm) in Canada) in front of the stove door, 8ò(20cm) beyond the sides of the fuel-loading door, and under the pipe and 2ò(5cm) beyond each side for back venting. In Canada, the 8ò(20cm) floor protection is required beyond the sides of the stove and in the back of the stove (0òin the back for the US).

When installing the stove, the heat distribution to other rooms should be taken into consideration. The RAIS Gabo Series stoves have a heating capacity of approximately 860 ft² (80m²) based on a standard ceiling height.

PDF Complete
Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

ï 6ò(15cm) diameter 3 HT, 6ò(15cm) diameter
Optimal Thermal Output ï 15,300 BTU (4.5 kW); range is 12-26.7 kBTU (3.5-7.8 kW)
Minimum stove draft pressure at above output ï 0.056òWC (14 Pascals)
Efficiency ï 74% based on DS standard
Tested EPA emission particulate rate ï 2.13 grams/hour
Minimum distance to non-combustible material ï 2ò(5cm) Note: Non-combustible must be solid cement or block (not brick or tile over combustible material).
Minimum distances to combustible material ï as shown:



#	Description	RAIS Gabo	RAIS Vola	RAIS Pina
A	Distance to combustible side wall - US - Canada	11ò(28cm) 13ò(33cm)		
B	Distance to combustible back wall - US - Canada	6ò(15cm) 8ò(20cm)		
C	Corner distance to side walls	4ò(10cm)	3ò(8cm)	4ò(10cm)
D	Connector pipe to side wall - US - Canada	18ò(46cm) 20ò(51cm)	18.5ò(47cm) 20.5ò(52cm)	19ò(48cm) 21ò(53cm)
E	Connector pipe to back wall - US - Canada	11ò(28cm) 13ò(33cm)	9.5ò(24cm) 11.5ò(29cm)	11ò(28cm) 13ò(33cm)
F	Corner pipe to side walls	12ò(30cm)		
G	Distance to furniture	36ò(91cm)		
H	Front floor protection - US - Canada	16ò(41cm) from door opening 18ò(46cm)		
I	Side floor protection	8ò(20cm) from door opening		
	Ceiling to top of stove	36ò(91cm)		
	Ceiling to connector pipe	18ò(46cm)		

Note: A heat shield or protective wall may be used to reduce clearances if it meets the NFPA requirements. Contact your local Building Inspector for proper guidelines.

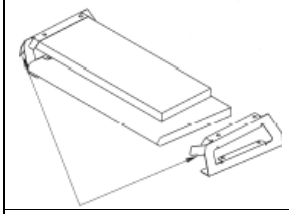
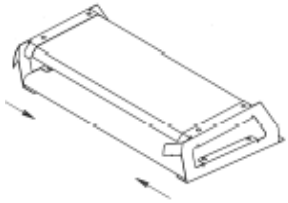
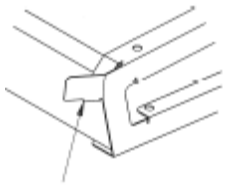
Assembly Instructions

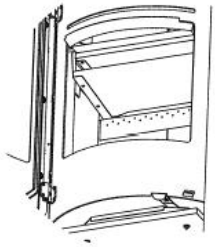
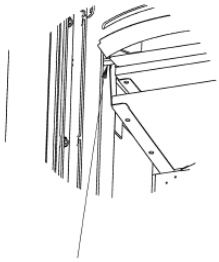
The RAIS Gabo, RAIS Pina, and the RAIS Vola stoves come assembled. To add the Soapstone top plate on the RAIS Gabo, remove the steel top plate and replace with the Soapstone top plate and the 2 bushings that are supplied. You may also just place the Soapstone top plate directly on top of the steel plate. **CAUTION: Soapstone is fragile, so please handle with care.**

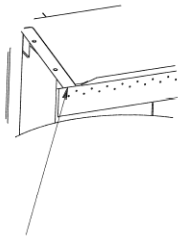
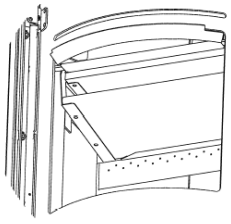
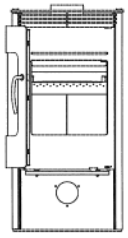
Mount the special RAIS collar using the included hardware. When installing the first piece of pipe (at the stove), place the pipe over the collar, which is designed so any moisture or creosote will drip back into the stove and burn away. If using a crimped pipe, cut that section off at the bottom and place it over the collar. Install the remaining stovepipe segments with the crimped end down whenever possible.

PDF Complete
Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

Follow the instructions below to properly assemble and install the baffle plates for the RAIS Gabo, RAIS Pina, and the RAIS Vola stoves.

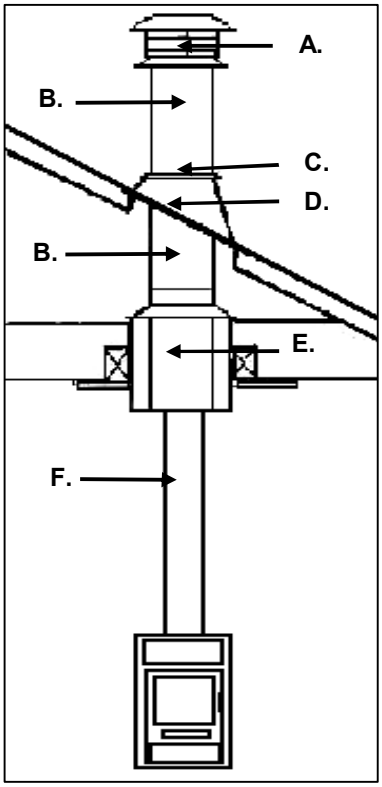
		
1.Note these notches.	2. Carefully press bracket on to the baffle plates.	3. Note the slots for safety lock.

		
4. Place the baffle plate into the stove as shown above. The safety lock section should be on top and face out toward front of the stove.	5. Turn and align the front part of the baffle plate upward and forward!	6. Slide the baffle plate on top of the ñLò brackets on each side of the fire box.

		
7. Next, slide the baffle plate back so the metal tabs fit in between the stainless steel bar and back fire brick ñvermiculiteò	8. Now the baffle plate has been placed in the correct position.	9. And the baffle plate is now properly placed.

PDF Complete
Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

g a Class A UL 103 HT approved factory-built chimney system or a code-approved masonry chimney with a flue liner. In Canada, the installation must conform to CAN/CSA-B365.



The chimney must extend through the roof at least 3ô(1m), and 2ô (.6m) above any structure within 10ô(3m).

The condition of the chimney and height is very important. We suggest a total minimum height of 10ô(3m).

Note the chimney connector pipe should not pass through an attic or roof space, closet or similar concealed space, or a floor or ceiling.

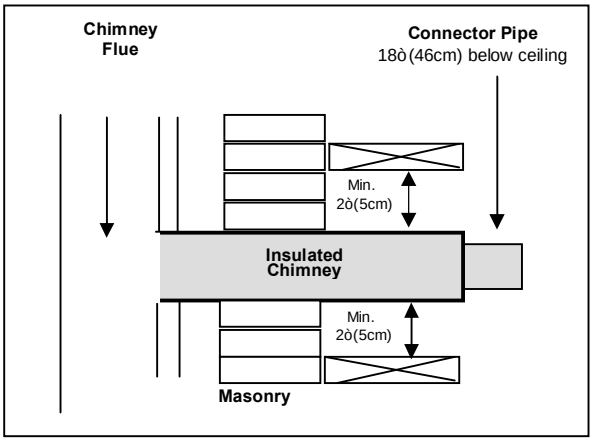
Do not connect this stove to a chimney flue or air distribution duct or any system serving another appliance.

Required Installation Components

A. Chimney Cap
B. Insulated Chimney
C. Storm Collar
D. Roof Flashing
E. Ceiling Support Box or Joist Shield/Firestop Spacer
F. Chimney Connector Pipe

For venting vertically into a Class A chimney, single wall pipe (at least 24 gauge) may be used in the room where the stove is installed. Refer to the manufacturerôs instructions for the connection to the listed chimney. The chimney/stove pipe must not be smaller than 6ò (15cm) in diameter.

For venting directly into a masonry chimney or through a thimble, the top of the single wall pipe must be at least 18ò(46cm) below a combustible ceiling and conform to NFPA 211 guidelines and methods. See diagram below.



PDF Complete
Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

nfigurations, consult the local building codes and

If the stovepipe is fitted with a baffle, it must be manually operated, visibly placed for ease of use, and must not close completely. Consult your chimney expert if you have any questions. **Important! Make sure that there is easy access to the chimney cleanout door.**

Operating instructions

First Fire

Your new RAIS should be broken in gently for top performance and to prevent paint damage, cracks in the firebrick, and excessive wear and tear.

Start with a small fire (**never overload the firebox**) to allow the materials to get accustomed to the higher temperatures, and then gradually increase the intensity. Use up to a maximum of 2 logs.

For the first few fires you may detect a strange smell that comes from "heat treating" the paint and materials. This is normal and will soon disappear. Just insure there is plenty of fresh air in the room!

Furthermore, during the initial heating up and cooling down, some "click-sounds" may occur from the metals being exposed to the large differences in temperature. This is normal.

For wood to burn correctly, the right amount of air has to be supplied at the right time and places.

Primary air is defined as combustion air for burning the ñmass of wood" and stimulates production of volatile gases.

Secondary air is used to burn off the gases at high temperatures (above 1,000°F (540°C)) and to keep the glass free of soot.

Basically, the primary air is used to start the fire, and the secondary air is used to maintain the fire.

The RAIS Gabo Series stoves are equipped with an air control handle on the right side just below the door. When the handle is pulled out all the way to **Position 1**, the primary air and secondary air are both fully open.

When the handle is pushed in a notch to **Position 2**, the stove gets only the full secondary air, and if the handle is pushed in further to Position 0, the air supply is reduced. At **Position 0**, the stove will shut down.

PDF Complete
Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

ind the door controls the shaker grate. It simplifies the the ashes through the grate into the ash pan.

Refer to Removing the Ashes in the CARE AND MAINTENANCE Section of the Manual for detailed directions.

Firewood used should be seasoned, split wood with an adequate low degree of moisture (15 - 22%), and ideally about 12 - 14ò(30 - 36cm) in length. In order to get ñdry woodò, it should be stored in a dry place under a roof with sufficient fresh airflow for at least one full year for softer woods and a minimum of two years for hardwoods. Take caution to keep stored wood at a safe distance from the stove when loading or removing ashes.

Only use the wood fuel as described in the FIREWOOD Section of this manual!

Building the Fire

To start the fire lay a few pieces of kindling or dry twigs and paper at the back of the firebox (enough for a small fire). **Build the wood directly on the stove hearth, and do not use a grate or elevate the fire.**

Pull the air control handle out to Position 1. Light the fire, and during start up you can leave the door slightly cracked (with supervision) until the kindling is burning well. Add 1 or 2 split logs on the kindling fire and allow enough time for them to catch on fire (about 2 - 5 minutes). Now close the door completely, and push the air control handle to Position 2.

Further adjustments to the air control may be made later on if necessary. **Never reduce the air intake to Position 0 while logs are still burning. This will cause incomplete combustion (creosote), risk of explosion, and soot on the glass.**

Once the door is closed and burning correctly, the stove does not require supervision.

The RAIS Gabo Series was developed to an optimal thermal output of 15,300 BTU/hr (4.5 kW) with a water content of 18%, which corresponds to **about 4½ lbs wood/hour**. If the fire is fed more than recommended, there is a danger that the stove will be overloaded and might discolor. **Over firing is unnecessary and will void the warranty.**

Check for a Proper Burn

For a proper burn, the inside of the firebox and the glass panel should be free of soot, and the ashes in the bottom should be light gray (not black). To allow more air in to the heating chamber, pull out the air control handle.

For normal operation the air control handle should be set at Position 2. However, if the wood is burning too quickly, you can adjust (push in) the air control handle.

To ensure a proper and safe combustion, there should be bright and lasting flames/embers. Don't let the wood smolder. Do not close the air inlets completely during normal usage.

PDF Complete
Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

n operation, so keep children, clothing, and
e skin burns.

Firewood

Specifications

Only burn wood that has been seasoned for at least one full year (2 years is best!). If the wood has not been "seasoned" or dried, much of the energy of the fire will go into evaporating the water. Furthermore, condensation or creosote might occur in the stove and pipe if you burn moist wood.

The log size should be about 2" (5cm) less than the width of the firebox.

Burning value of wood

Air-dried wood has less moisture (15 - 20%) than freshly cut timber (40%+), and typically yields 20% more available heat. Wet wood burns at a lower temperature and causes incomplete combustion (soot and "creosote" formation, which in extreme cases, can lead to a chimney fire).

All types of wood heat up equally per pound (kilogram); however, the density of wood is not the same, as shown in the following table:

Type of wood	*Dry Wood - Lbs/ft³ (Kg/m³)*	*Compare to beech*
Beech and Oak	36.2 (580)	100%
Ash	35.6 (570)	98%
Maple	33.7 (540)	93%
Birch	31.8 (510)	88%
Mountain pine	30.0 (480)	83%
Fir	24.3 (390)	67%
Poplar	23.7 (380)	65%

A Few Reminders

- Store your wood cut and split (split logs dry faster).
- Keep the woodpile in a dry sunny place, protected from the rain. Don't cover the pile with plastic, because that will prevent the wood from drying out properly.
- Stack the wood with enough space between the rows to ensure good air circulation!

Fuel Caution

Do not burn trash (plastics and other trash emit harmful gases), driftwood, treated wood, artificial logs, or non-seasoned wood.

Never use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid, naphtha, engine oil, or similar liquids to start or "freshen up" a fire in this heater. Keep all such liquids well away from the heater while it is in use.

PDF Complete
Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

E

Although your RAIS stove requires little day-to-day upkeep, it is important to maintain it for your safety and enjoyment.

IMPORTANT:

YOU SHOULD HAVE YOUR CHIMNEY AND STOVE CHECKED ONCE EVERY 2 MONTHS DURING THE HEATING SEASON OR AT LEAST ONCE A YEAR BY A PROFESSIONAL CHIMNEY SWEEP AND CLEANED AS NEEDED.

Creosote – Formation and Need for Removal

When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited this creosote makes an extremely hot fire.

The chimney connector and chimney should be inspected once every two months during the heating season to determine if a creosote buildup has occurred.

If creosote has accumulated it should be removed to reduce the risk of a chimney fire.

Surfaces

The outer surfaces can be wiped with a dry soft rag, and if needed, a small amount of mild detergent, but try not to scrub!

Minor scratches and other surface damage can easily be touched up with the RAIS paint supplied with each stove. Remove any dirt, tar, and rust, and make sure repairs are made only when the stove is cool (room temperature).

Soapstone stains can be cleaned with alcohol or it can be lightly sanded.

Glass Doors

The glass can be easily cleaned by wiping with a damp rag dipped in some of the ashes. A good commercial glass cleaner can also be used.

If the glass should break, carefully lift off the door. Remove the 9 screws from the back, and remove the inner frame assembly. Then, remove all the loose pieces of glass and replace only with a 4mm ceramic new glass panel and gasket available from an authorized RAIS dealer. Assemble the inner frame, tighten screws evenly (star formation), and put the door back on.

PDF Complete
Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

stible pail or tray.

Remember to leave some of the ashes in the firebox (about a 2ð5cm layer) for better insulation!

DISPOSAL OF ASHES:
ASHES SHOULD BE PLACED IN A METAL CONTAINER WITH A TIGHT FITTING LID. THE CLOSED CONTAINER OF ASHES SHOULD BE PLACED ON A NONCOMBUSTIBLE FLOOR OR ON THE GROUND, WELL AWAY FROM ALL COMBUSTIBLE MATERIALS, PENDING FINAL DISPOSAL.
IF THE ASHES ARE DISPOSED OF BY BURIAL IN SOIL OR OTHERWISE LOCALLY DISPERSED, THEY SHOULD BE RETAINED IN THE CLOSED CONTAINER UNTIL ALL CINDERS HAVE THOROUGHLY COOLED.

Cleaning the Smoke Box/Baffle System

Remove the baffle plate as described in the Assembly section. Brush the smoke box and vacuum if necessary. Then put the baffle plate back in reverse order. Make sure it is correctly in place and the top opening is fully closed.

Firebox Lining

The firebox bottom lining is made out of firebrick and the side lining is made out of vermiculite slab insulation (skamol), which protects the outer steel plates from overheating. With time small cracks might appear, and this is normal. If it breaks however, it must be replaced. Vermiculite is a porous, high-insulating material and must therefore be handled with care.

Gaskets

It is recommended to replace the door gaskets about every 2 years. When replacing the door gasket, make sure the door glass is not pressed too hard against the gasket. The gasket around the ash drawer can also be replaced as needed. Gaskets can be obtained from an authorized RAIS dealer.

Trouble shooting

Problem	Possible Cause/Solution
Smoke coming out of the door	There may not be enough draft in the chimney (<0.06òWC (<16 Pascals)). Check for an obstruction.
Soot on the glass	Take care that the stove is warmed up sufficiently before closing the door.
The stove is burning too quickly	Check the door gaskets first and replace if needed. The chimney could also be too high and thus create too much draft (>0.09òWC (>22 Pascals)). A damper may be needed.

Your complimentary use period has ended. Thank you for using PDF Complete.
Click Here to upgrade to Unlimited Pages and Expanded Features

too slowly	due to too little air getting to the stove. Check that you're not running exhaust fans (kitchen/bath), the chimney is not blocked, or there is a leak between the chimney, the stovepipe, and the stove.

If the problem continues or other conditions, we recommend that you contact your chimney sweep or your dealer.

If you should experience a chimney fire, quickly close all doors, dampers, vents, and call you local fire department. **Don't use water** to extinguish the fire.

Warranty

We offer a 5-year warranty on your RAIS stove, which covers any defect in material or workmanship. It does not cover damage from misuse or neglect. The glass, gaskets, firebrick and vermiculite stone liners are not covered.

ENJOY YOUR NEW RAIS!